REMARKS/ARGUMENT

Amendments to the Claims

Claim 1 has been limited and amended by incorporating the members of the group from which the one or more hardeners is/are selected, according to the provisions of Claim 14, into it, with the definitions of those members incorporated from page 3, line 26-page 4, line 28, page 6, lines 2 and 3, page 8, lines 24 and 25, and page 12, line 20-page 14, line 24. Claim 14 has, therefore, been deleted, and Claim 15 has been amended to reference the definitions of compounds B1, B2 and B3 from Claim 1. Other minor additions to Claims 1 and 15 have been made for clarity, grammatical or stylistic reasons, without otherwise substantively changing either of these Claims.

Accordingly, Applicants submit that the amendments to the Claims are fully supported by the original Specification and Claims and add no new matter to the Application. Entry of these amendments and continued examination based on the same is respectfully requested.

The instant invention is directed to a method of coating a glass substrate, especially glass fibers, comprising applying to the substrate a coating composition comprising from 1-to-98%, by weight, of a solventless epoxy resin reaction product of (a) epichlorohydrin and (b) bisphenol A and/or bisphenol F, preferably epichlorohydrin and bisphenol A, which reaction product has a viscosity of 5,000-to-15,000 mPas at 20°C, and is liquid at that temperature; from 1-to-98%, by weight, of one or more water-dilutable epoxy resin hardeners selected from a specific group; from 1-to-98%, by weight, of water; and, optionally, conventional additives, then curing the coating composition, preferably at ambient temperature, on the substrate; to the coated glass fiber prepared by that method; to a composite material containing such coated glass fibers; to a method of reinforcing synthetic fibers with such coated glass fibers; and to the reinforced synthetic fibers resulting therefrom.

Claims 13-15 have been rejected under 35 USC 112, second paragraph, as indefinite, as "the structural relationship of the synthetic fiber and reinforcing fiber is not clear" in Claim 13, and "B1, B2 and B3 are not defined" in Claims 14 and 15.

With respect to defining a particular structural relationship between the synthetic fiber and the reinforcing fiber, Applicants respectfully suggest that the practitioner would readily identify various methods to create a reinforced synthetic fiber comprising a synthetic fiber and a reinforcing fiber comprising a coated glass fiber prepared according to Applicants' invention, such as by twisting one fiber with the other (e.g., twisting the synthetic fiber around the coated glass fiber), spinning short-staple synthetic fibers with the glass fibers, forming a nonwoven combination thereof by methods well known in the art, coating the glass fiber with the synthetic fiber(s), much as Applicants' resin composition is coated on the glass fiber, or, prior to the curing step in Applicants' process, pressing and compacting the synthetic fiber with the coated glass fiber to fuse the two fibers, then curing both into a reinforced combination. These particular structural composites would be well known and well within the capabilities of the reasonably-skilled artisan without further description or specification.

With respect to the definitions of B1, B2 and B3, Applicants have incorporated the definitions by product-by-process descriptions from the Specification, as discussed above, into Claim 1, which now incorporates Claim 14, and from which those terms may be understood for Claim 15.

Reconsideration and withdrawal of the rejection is, therefore, respectfully requested.

Claims 1, 4-6, and 8-15 have been rejected under 35 USC 103(a) as unpatentable over Nakamura *et al*, US 5,633,042 in view of Hoefer *et al*, US 2004/0087684 A1.

United States Patent 5,633,042 (Nakamura *et al*) describes a process for continuously manufacturing a composite material (such as a prepreg for use as electric insulating material)

comprising a fibrous sheet-shaped reinforcing substrate (such as glass fiber woven cloth of 20-to-1,000 g/m^2 mesh or cloths of aromatic polyamide fiber, polyester fiber, and the like, as unidirectional fiber sheet and random-arrangement nonwoven sheet) impregnated with a molten thermosetting matrix resin composition containing an epoxy resin, such as bisphenol, cresol novolak-type or phenol novolak-type epoxy resin as a main component, possibly with other resins, such as unsaturated polyester resin, polyurethane resin, or vinyl ester resin; a hardener, such as dicyandiamide; a hardening promoter, e.g., imidazoles, phosphorous, an aliphatic or aromatic third-class amine or diazobicyclononen; substantially containing no solvent, which process comprises uniformly coating one surface of the substrate with a thin film of the matrix resin with a viscosity of 1,000-to-30,000 cPS, preferably in less than 20, more preferably in less than 15 minutes, to eliminate hardening troubles of the resin in the extruder, followed by heating, in a non-contact manner, the matrix resin and fibers by, e.g., an infrared ray heater, to impregnate the reinforcing member with the resin, passing the coated substrate through a plurality of compaction rolls, specially-coated to reduce the adhesion properties between resin and roller surface, possibly coating the surface opposite the already-coated surface, then semi-hardening the resin-impregnated substrate with a heated fluid, such as air or nitrogen, in a non-contact manner, with a floating dryer, at 120-to-200°C for 20-to-300 seconds.

The Nakamura *et al* reference does suggest a method of coating a glass fiber woven cloth substrate with an epoxy resin composition, and does disclose, in the context of a "Comparative Example" (specifically, Comparative Example 18, columns 25-29), the possible use of halide bisphenol A- and halide bisphenol F-type epoxy resins, with viscosities of 1,000-to-30,000 mPas at 25°C, in a mixture with tetrabromobisphenol A with dicyandiamide as a hardener. However, the reference does not suggest that the bisphenolic epoxy resin is a reaction product of epichlorohydrin and bisphenol A and/or bisphenol F, in fact, in the context of the other Examples and its own descriptions, that epoxy resin is likely to be bromine-containing, and the reference nowhere teaches the use of the specific water-dilutable epoxy resin hardeners of Applicants' compositions, or the use of water, a compulsory component (page 15, line 12) of Applicants'

compositions (in fact, the Nakamura *et al* Patent employs a vacuum extraction device in its process to remove any amounts of water or other solvent, as bubbles resulting from the presence of residual solvent can deteriorate the prepreg quality). In addition, the pervasive use of heaters in the Nakamura *et al* process to melt and maintain the Patent's epoxy resin compositions in a molten state, and the use of atmospheric temperatures of 120-to-200°C to semi-harden their coated substrate, as compared to Applicants' ambient temperature curing, suggests that the Nakamura *et al* compositions and process are considerably different from the compositions and method claimed by Applicants. Clearly, therefore, the Nakamura *et al* Patent neither teaches nor reasonably suggests either Applicants' composition or Applicants' process.

Published United States Patent Application 2004/0087684 A1 (Hoefer *et al*) describes coating compositions as leveling, insulating and other functional coatings, particularly floor coating compositions, that flow evenly and quickly to produce a smooth surface on concrete, wood and other substrates, particularly for the building industry, which compositions comprise 5.0-to-50.0, preferably 5-to-30%, by weight, of a solvent-free epoxy resin reaction product of epichlorohydrin and bisphenol A and/or bisphenol F, preferably bisphenol A; 5.0-to-55.0, preferably 5-to-25%, by weight, of one or more water-dilutable epoxy resin hardeners derived from adducts based on α,β-unsaturated carboxylic acid esters and mono-, di-, or polyaminopolyalkylene oxide compounds, preferably selected from a group of three particular such compounds; 0.1-to-10, preferably 0.1-to-5.0, particularly preferably 0.1-to-2.5%, by weight (which range leads to self-leveling coatings that are far more flexible and show higher flexural and tensile strength and tear-propagation resistances), of fibers (either thread-like structures of limited length or endless filaments-either individually or in bundled form), which are intended to improve the chemical, thermal and mechanical properties of the coatings, as well as the processing behavior of the coating compositions; 0 or 0.1-to-5.0, preferably 0.1-to-2.0%, by weight, of wax-based open-time extenders, preferably C_{16}-C_{72} fatty alcohols; 0 or 0.1-to-5.0, preferably 0.1-to-3.0%, by weight, of rheology additives, such as layer silicates, poly(meth)acrylates, cellulose ethers or associative thickeners, either individually or in

combination; 5.0-to-70.0%, by weight, of fillers, such as silica sand, heavy spar, calcium carbonates, and the like; 0 or 0.1-to-20, preferably 0.1-to-12.0, more preferably 0.1-to-10.0%, by weight, of water- either introduced as such, or by using the other components in water-containing supply form, or by a combination of these methods; and 0-to-70%, by weight, of other additives and/or processing aids, such as pigments, cement, gravel, deaerators, defoamers, dispersion aids, antisedimenting agents, accelerators, free amines, flow control additives and conductivity improvers.

The combination of the Nakamura *et al* reference with the Hoefer *et al*' 684 reference is neither obvious nor does it cure the deficiencies of the Nakamura *et al* reference. While some of the elements of the Hoefer *et al* composition are indeed similar to those of the instant invention, the Examiner cannot use hindsight in order to modify Nakamura *et al*'s process for coating a glass substrate to use the different epoxy resin composition of the Hoefer *et al*' 684 reference. The Hoefer *et al*' 684 composition is liquid at 20°C, contains water, already contains fibers, prior to any coating activity with glass fibers, and employs different specific hardeners for producing structural- particularly floor- coatings, making it very different from the Nakamura *et al* compositions, for which the Nakamura *et al* process, which depends on heaters, vacuum extraction devices, short residence times, and high temperature curing to accomplish its objective of producing smooth, uniform prepregs as electrical insulation, was designed. The presence of water alone would cause problems in the Nakamura *et al* process, as discussed above, and there does not appear to be any benefit that the Hoefer *et al*' 684 compositions, preferably intended as floor coatings, or selective elements thereof (such as substituting hardener compounds) could contribute to the Nakamura *et al* process that would make the combination likely or obvious.

Reconsideration and withdrawal of this rejection is respectfully requested.

Claims 6, 8, 10 and 12 have been rejected under 35 USC 102(b) as anticipated by Nakamura *et al*, 5,633,042.

As discussed above, the Nakamura *et al* Patent does not disclose the specific reaction product of Applicants' invention or the presence of water and the specific water-dilutable hardeners of Applicants' coating compositions, and therefore, cannot teach the coated glass fibers or composition materials of Claims 6, 8 and 10. Then, as also discussed above, the curing temperatures of the Nakamura *et al* reference distinguish it from Applicants' Claim 12.

Clearly, the Nakamura *et al* Patent neither discloses nor even fairly suggests Claims 6, 8, 10 or 12 of the instant Application.

Reconsideration and withdrawal of this rejection is, therefore, respectfully requested.

Believing that the Application is in condition for allowance, Applicants earnestly solicit such favorable action of the Examiner, and respectfully request that a timely Notice of Allowance be issued in the prosecution of this Application.

If any further questions do remain which may be resolved by a telephone interview, the Examiner is respectfully requested to telephone another of Applicants' Attorneys, John Daniels at 215-628-1413 through July 31st, or thereafter, Synnestvedt & Lechner LLP at 215-923-4466.

Respectfully submitted,

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(Date)

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